

MAIL ROOM  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Vincent J. Coates

Assignee: Nanometrics Incorporated

Title: METHOD FOR DETERMINING ABSOLUTE REFLECTANCE OF A MATERIAL IN THE ULTRAVIOLET RANGE

Serial No.: 08/111,298 Filed: 08/23/93

Examiner: D. Dunn Group Art Unit: 2500

Attorney Docket No.: 8196R

Sunnyvale, California  
March 29, 1994

COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D. C. 20231

SUBSTITUTE DECLARATION FOR REISSUE APPLICATION

Sir:

As a below named inventor and Chief Executive Officer of the Assignee, Nanometrics Incorporated, I declare that I am a citizen of the United States and resident of 3149 Alexis Drive, Palo Alto, California 94304.

I believe I am the original, first and sole inventor of the subject matter which is claimed in my U.S. Patent No. 5,045,704 (Patent '704) for which a reissue patent is sought on the invention entitled "METHOD FOR DETERMINING ABSOLUTE REFLECTANCE OF A MATERIAL IN THE ULTRAVIOLET RANGE", the Specification and Drawing of which is attached hereto in the form of a cut-up, column by column, copy of the original patent with requested changes shown. I hereby acknowledge that I have reviewed and understand the above identified specification, drawing and claims.

I acknowledge my continuing duty to disclose information which is material to examination of this Application in accordance with 37 C.F.R. §1.56.

Pursuant to 37 C.F.R. §1.175, I declare the following:

1. I verily believe the original Patent '704, upon which this Reissue Application is based, is wholly or partly inoperative or invalid by reason of errors occurring in the specification, drawings, abstract, and claims 2, 4 and 5 of the

patent.

2. The errors arose without any deceptive intention on my part.

3. On or about March 1993 Assignee's employees became aware of a U.V.-1050 System being offered for sale by Prometrix Corporation of Santa Clara, California.

4. On March 3, 1993, I wrote to the Chairman of Prometrix bringing subject U.S. patent No. 5,045,704 to his attention. On or about April 16, 1993, Limbach & Limbach, San Francisco Intellectual Property Attorneys on behalf of Prometrix replied to Assignee's in-house General Counsel, Mr. Brian Flynn informing him of various prior art references which might be relevant. Following receipt of the April 16, 1993 letter from Limbach & Limbach, I had Mr. Warren Lin, Vice President of Optical Engineering for Nanometrics and Mr. Duane C. Holmes, Field Emission-Optics Engineer for Nanometrics review the patent and the prior art submitted by Limbach & Limbach. On Information and belief during May 1993, Messrs Lin and Holmes discovered what was believed to be errors in the patent.

5. On or about May 5, 1993, I called Mr. Thomas MacDonald of the Skjerven, Morrill, MacPherson, Franklin & Friel law firm in San Jose, California and requested a review of the relevancy of the prior art submitted to Nanometrics by Limbach & Limbach. On information and belief, on May 27, 1993 Mr. Flynn, Mr. Lin, and Mr. Holmes met with Mr. MacDonald to discuss the patent and the prior art received from Limbach & Limbach. On or about June 1, 1993, I received a telephone call from Mr. MacDonald reporting on his meeting with Messrs Flynn, Lin and Holmes. Mr. MacDonald informed me of the possibility of filing a reissue application to correct the errors found and to have such prior art considered by the Examiner. I informed Mr. MacDonald that the idea of a reissue was interesting and

that we would discuss internally at Nanometrics and decide what to do. During June and July 1993 I and others at Nanometrics considered the desirability, expense and time of a reissue application we contacted our original attorney Mr. Linval Castle and instructed him to prepare and initiate the present reissue application.

6. IDENTIFICATION OF ERRORS, HOW THE ERRORS AROSE AND WHEN APPLICANT BECAME AWARE OF THE ERRORS

Col. 1, Line 15: Erroneous Inclusion

The expression "ratio of incident energy to reflected energy" is an incorrect definition of "reflectance" line 15-16. Rather than correct the first quoted expression, the erroneous expression has been deleted since the definition of "reflectance" is well-known in the art.

When the error arose

The error arose by the misleading transposition of "incident energy" and "reflected energy" in the expression as discussed by me with my patent attorney on or about January 1990 during the preparation of the original patent application. I did not notice the transposition in my review of the specification as drafted by my attorney in about January 1990.

When Applicant Became Aware of the Error

It was only upon the later review of the issued patent with my colleagues at Nanometrics Incorporated on or about May-June 1993 as set forth in Paragraph (4) above that I became aware of this error.

Column 1 lines 36-38: In view of the Examiner's objections to the changes to lines 36 and 37, the amendment and Patent '704 cut-up forwarded herewith deletes those changes. Further the original recitation "aluminum specimen" has been reinserted in line 38. Thus Applicant no longer is indicating an error on lines 36-37.

Column 1 line 40: This error reflects a need of clarification

since the absolute reflection is computed from not only "absorption data available in handbooks" but also from the index of refraction. This addition secures correspondence with the Detailed Description column 2 lines 33-36 as required by 37 C.F.R. § 1.117. The term "myriads of" was deleted as superfluous and lacking clarity. The error arose at the time of preparation of the application about January 1990 incident to my review of the patent application draft. The error was discovered in May/June 1993, as discussed above with respect to the error in Column 1 line 15.

Column 1 lines 42-43: This error reflects confusing unclear language i.e., "a product of all optical system coefficients", which is not in accord with the Detailed Description Column 2 line 42 where the term "system efficiency coefficient" (singular) is correctly used. This correction secures correspondence between the Summary and Detailed Description under 37 C.F.R. § 1.117. The error and unclear language arose at the time of preparation and my review of the application draft about January 1990. The error and need of clarifying language was discovered in May/June 1993, as discussed above with respect to the error in column 1 line 15.

Column 1 line 60: The error in this paragraph deletes a technically incorrect statement. The statement that the "material" used in the construction of lenses is chromatic or has chromatic aberration cannot be true since it is the lens itself which may be chromatic or which has chromatic aberration. The statement now reads that "Since the material used in the construction of typical refractive lenses is opaque to UV radiation, reflective optical devices should be used." This is more clear to the reader. The error and unclear language arose at the time of preparation and my review of the application draft about January 1990. The error and the need for clarifying

language was discovered in May/June 1993, as discussed above with respect to the error in Column 1, line 15.

Column 2, line 28 and 29: The changes proposed in the reissue application have been deleted. The first sentence of the paragraph commencing on line 2, line 27 now reads as in the issued patent namely:

--Absolute reflectance of an unknown material can be determined if one knows the values of both absolute and measured reflectance of a known material at the desired wavelength --

The supposed error in the reissue application (line 29) canceling the word "measured" was inadvertent and arose in the July 1993 to August 1993 time frame during the preparation of the reissue application. The supposed error was discovered not to be an error in January-March 1994 when I and my Nanometrics colleagues were reviewing the reissue application following receipt of the 01/03/94 Office Action.

Column 2, line 35: This error involved the incorrect use of "frequencies" instead of --wavelengths--. The change secures correspondence under 37 C.F.R. § 1.117 to Column 1, lines 39-31 and the remainder of the Column 2, line 35 sentence which also mentions referring to the "tables" that many also list the values of absolute reflectance of various wavelengths. Further, the entire specification including Fig. 2 clearly would alert a person skilled in the art that "frequencies" was indeed an error and should have been --wavelengths--. The error arose during my review of the draft patent application on or about January 1990. The error was discovered in May/June 1993, as discussed above with respect to the error in Column 1, line 15.

Column 2 line 44: This error involved improper English idiom. "Divide" should have been --dividing--. The error arose

during my review of the draft patent application on or about January 1990. The error was discovered in May/June 1993, as discussed above with respect to the error in Column 1, line 15.

Column 2, line 48: This error involved a non-sensical "measure the measured" phrase. The error occurred in the application preparation in January 1990 and was discovered in May/June 1993.

Column 2, line 52: This error involved an incorrect Equation (2). The error was also found in the specification at column 1 line 41 where "by" has been changed to --into--; at column 1 line 46 where "multiplied" has been changed to --divided--; and again in column 2, line 50; column 2, line 60; column 3, line 4; and in claim 2, line 2.

On belief, the Col. 2, line 47 error was also made in Fig. 2 of the drawings based on a sketch and formal Fig. 2 which was incorrectly prepared by an illustrator/draftsman using in the bottom block the word "MULTIPLY" rather than the correct word --DIVIDE--. The Col. 2, line 47 and Fig. 2 errors occurred during the preparation of and my review of the draft application in January 1990. On information and belief the error reflected a miscommunication between myself and my patent attorney and he with the patent illustrator/draftsman. On information and belief, my patent attorney gave the illustrator a rough sketch of what became Fig. 2 which included in the bottom block the first word "DIVIDE" but somehow the illustrator substituted the word "MULTIPLY" on the formal Fig. 2 which he drew. On information and belief, my patent attorney used this formal Fig. 2 to prepare the application draft and in several places, including Equation (2), used the "multiply" word or symbol. When I reviewed the final draft of the original application, I did not notice that a slant line to indicate division was missing from Equation (2) and that "multiply" should have been "divide" in several places. The

error was discovered in May/June 1993, by Messrs. Lin and Holmes as discussed above with respect to the error in column 1 line 15.

Abstract: This error involves a change in the modifier for "wavelength". The modifier in the Abstract should have been the same as in Col. 1, lines 33-35. The error occurred in January 1990 during preparation of the original application. This error was discovered in May/June 1993 and further correction has been made in the cut-up copy of the patent submitted herewith.

#### CONCLUSION

I respectfully submit that the above identified and discussed errors, and the recitations of how the errors arose and when the errors were discovered supports the right for a reissue of the Patent '704. Since it has been shown that the original Patent '704 is in error and that all requirements for obtaining a reissue patent have been met, I respectfully request that a reissue patent containing the corrections of the errors be issued.

7. I, in my capacity as Chief Executive Officer of Nanometrics Incorporated hereby appoint the following attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith.

Linval B. Castle, Reg. No. 20,332  
Thomas S. MacDonald, Reg. No. 17,774,  
Alan H. MacPherson, Reg. No. 24,423  
Paul J. Winters, Reg. No. 25,246  
Forrest E. Gunnison, Reg. No. 32,899

Please address all telephone calls to Linval B. Castle at telephone no. (510) 887-1346 and address all correspondence to:

Linval B. Castle  
22693 Hesperian Blvd. #270  
Hayward, CA 94541

8. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or

imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole inventor: Vincent J. Coates

Title: Chief Executive Officer of Nanometrics Incorporated

Inventor and Assignee signature: Vincent J. Coates

Date: March 29 1994 Country of Citizenship: USA

Residence: Palo Alto, California

P.O. Address: 3149 Alexis Drive  
Palo Alto, CA 94304